

Serial No.: 09/912,601

REMARKS

Claims 1 and 3-8, as amended, remain herein. Claim 2 remains herein but is presently withdrawn from consideration.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment.

Claims 1 and 3-8 have been amended more clearly to recite applicants' invention.

Acknowledgment of applicants' claim for foreign priority under 35 U.S.C. §119, with certified copies of all priority documents, filed October 16, 2001, is respectfully requested.

1. Claims 1 and 6-8 were rejected under 35 U.S.C. §102(b) over Lips et al. U.S. Patent 5,131,329.

The presently claimed explosive ammunition having a fragmenting structure comprises an explosive charge located in a splinter-generating shell, a case enclosing the shell and means for generating a mechanical stress differential at the outside surface of the shell during ammunition initiation, wherein the differential enhances splinter generation and is spatially distributed across the shell. This arrangement is nowhere disclosed or suggested in any of the cited references.

The Office Action cites Lips '329 as disclosing outer cases 2 and 3 and a steel inner shell 4 having square structured zones 7 on its outer surface with an explosive charge contained therein. However, Lips '329 does not disclose an explosive charge located in a splinter-generating shell, because inner shell 4 is not a shell for generating splinters upon receiving the effects of a mechanical stress differential, despite the presence of the square structured zones on its outer surface. Lips '329, column 3, lines 40-57, describes an explosive charge 5 contained in inner shell 4. During detonation of explosive 5, the resulting shock wave impulse is locally directed into and coupled with outer casing 3 at contact regions 8 between portions 11 in the outer surface of shell 4 and the inner surface of casing 3 (Lips '329, column 3, lines 41-57). No shock wave coupling results in the interior spaces formed by the structured zones or grooves 7 (Lips '329, column 3, lines 48-49). Thus, there are zones of maximum pressure and other zones of substantially zero pressure on casing 3. The energy coupled into casing 3 at contact regions 8 accelerates subdomains of outer shell 3 and induces sheer stress gradients in shell 3. Outer shell 3 splinters into fragments due to the stress gradients (Lips '329,

Serial No.: 09/912,601

column 3, lines 52-57). Inner shell 4 does not generate the fragments.

As a result, there are two deficiencies in Lips '329: first, Lips '329 discloses a means for generating a mechanical stress differential on the inside surface of shell 3, which is fragmented, because the means for generating stress is between inner shell 4 and outer shell 3, and it is the inner surface of shell 3 that receives the force, whereas applicants' claim 1 recites a means for generating a mechanical stress differential on the outside surface of the shell that is fragmented.

Second, Lips '329 discloses fragmented shell 3 as being outside inner shell 4, which is the shell that contains the explosive charge. Fragmented shell 3 does not contain an explosive charge, whereas applicants' presently claimed ammunition recites a shell that is fragmented as containing the explosive charge. Therefore, for either reason, Lips '329 is not the same as applicants' presently claimed invention.

For the foregoing reasons, Lips '329 fails to disclose all elements of applicants' claimed invention, and therefore is not a proper basis for rejection under §102. And, there is no disclosure or teaching in Lips '329 that would have suggested the desirability

Serial No.: 09/912,601

of modifying any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claims 3-8, which depend from claim 1 are allowable for the same reasons as claim 1. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

2. Claims 1 and 3-5 were rejected under 35 U.S.C. §103(a) over Lips '329 and Koontz et al. U.S. Patent 5,337,673.

As described hereinabove, Lips '329 (1) does not disclose a means for generating a mechanical stress differential on the outside surface of the shell that is fragmented, and (2) does not disclose a shell that is fragmented as containing the explosive charge.

Koontz '673, column 2, lines 1-9, describes a single shell 12 as a casing for a warhead, shell 12 having an expanded metal mesh embedded into the inner surface of its wall, to form a single, thinned, composite wall structure. Koontz '673 does not provide the deficiencies of Lips '329 listed hereinabove, for several reasons, as explained next.

Koontz '673, column 2, lines 8-9 and also line 15, as well as column 1, lines 6-12, describes shell 12 merely as "a warhead

Serial No.: 09/912,601

casing," without further description. Koontz '673 describes a shell wall having a means for generating a mechanical stress differential, but does not clearly specify what wall on which that stress is directed. The mesh is only for the purpose of creating such a stress. However, Koontz '673 merely describes the generating means, i.e., the embedded mesh, and how to make it. Koontz '673 does not teach or suggest that stress is directed on any particular wall surface, and therefore, not the outside surface of the shell that is fragmented, as recited in applicants' claims. Thus, Koontz '673 does not provide the first above-listed deficiency of Lips '329.

Koontz '673 does not disclose shell 12 as being a splinter-generating shell containing an explosive charge. The shell could be located external of a second shell, or have some other arrangement. Nowhere in Koontz '673 is there any hint that the mesh-embedded shell contains an explosive charge. Thus, Koontz '673 does not provide the second above-listed deficiency of Lips '329.

Claims 3-5 are allowable is allowable for the same reasons as claim 1.

Also, Claim 3 recites a means for generating a stress differential comprising a netting solidly joined to the case or placed between the case and the shell, and claim 5 recites that the netting is embedded in the case. The Office Action admits that Lips '329 does not disclose a fragmentation producing netting embedded in the case, and suggests that one skilled in the art allegedly would apply the shell casing having a mesh embedded in its inner surface of Koontz '673, to the arrangement of Lips '329. But the prior art references do not disclose or suggest any such condition. The Lips '329 stress generating means is an inner shell having grooves on its outer surface, which grooves are necessary for causing zones of maximum pressure and other zones of substantially zero pressure on a second, outer shell 3 (Lips '329, column 3, lines 53-54). To apply the Koontz '673 embedded mesh, would mean to embed the mesh in the outer surface of Lips '329 inner shell 4, so that, upon explosion, it might possibly create stress on outer case 3.

But Koontz '673, column 4, lines 6-8, does not teach such a result. Neither does Lips '329. Koontz '673 describes the embedded mesh as being only on the "interior surface of a casing." There is no teaching or suggestion in Koontz '673 that it would be

Serial No.: 09/912,601

beneficial to switch the mesh from inside to outside surfaces of the casing. Koontz '673 does not teach that such an externally facing embedded mesh would project stress. And therefore, there is no basis for switching the embedded mesh to replace the outer surface grooves of shell 4 of Lips '329.

Moreover, applicants' claim 1 recites that the explosive containing shell is also the fragmented shell, and therefore, the generated stress must impact on that shell. There is no evidence on record that any of the above suggested substitutions would result in that arrangement or function that way.

For the foregoing reasons, neither Lips '329 nor Koontz '673 contains any teaching, suggestion, reason, motivation or incentive that would have led one of ordinary skill in the art to applicants' claimed invention. Nor is there any disclosure or teaching in either of these references which would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants' presently claimed invention. Claims 3-5, which depend from claim 1, are allowable for the same reasons as claim 1. Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

Serial No.: 09/912,601

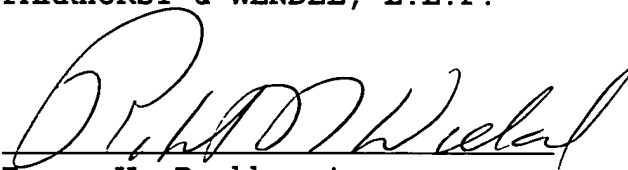
All claims 1 and 3-8 are now proper in form and patentably distinguished over all grounds of rejection cited in the Office Action. Accordingly, allowance of all claims 1 and 3-8 is respectfully requested.

Should the Examiner deem that any further action by the applicants would be desirable to place this application in even better condition for issue, the Examiner is requested to telephone applicants' undersigned representatives.

Respectfully submitted,

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Date


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RWP:RNW/mhs

Attachment: Claim Mark-ups

Attorney Docket No.: CELA:083

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Serial No. 09/912,601

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

CLAIMS

1. (Amended) An explosive ammunition-(1) having a fragmenting structure ~~which comprises~~ comprising:

an explosive charge (3) configured located in a splinter-generating shell-(2); ~~where said ammunition is characterized in that it comprises~~

a case-(7) enclosing the shell-(2); and including

means which during ammunition initiation will implement for generating a mechanical stress differential at the outside surface of the shell-(2) during initiation of explosion of the explosives charge, ~~where~~ wherein said differential enhances splinter generation and ~~which is spatially distributed across a regular array~~ the shell-(2).

2. (Amended) Explosive ammunition as claimed in claim 1, characterized in that the means creating a stress differential include an inside surface-(8) of the case-(7) fitted with an array of salients of which each related mesh-(9) is hollow and is bounded by a salient rib-(10) making contact with the shell-(2), such a configuration assuring weakening this shell-(2) during ~~ammunition~~ said initiation along the ribs-(10) to generate splinters.

3. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in according to claim 1, characterized in that~~ wherein the means for generating a stress differential

Serial No. 09/912,601

Attorney Docket No.: CELA:083

VERSION WITH MARKINGS TO SHOW CHANGES MADE

~~include~~ comprises a netting (11) solidly joined to the case (7) or placed between the case and the shell (2), said netting constituting the weakening array.

4. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in~~ in according to claim 1, characterized in that wherein the case (7) is made of plastic.

5. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in~~ in according to claim 3, characterized in that wherein the netting (11) is imbedded in the case.

6. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in~~ in according to claim 1, characterized in that wherein the array is fitted with square elementary meshes (9).

7. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in~~ in according to claim 1, characterized in that wherein the shell (2) is made of steel or tungsten.

8. (Twice Amended) ~~Explosive~~ The explosive ammunition as claimed ~~in~~ in according to claim 1, characterized in that wherein the case (7) constitutes a nose cone (7a).